WARNING

Because of possible shock or fire hazards, connection of this instrument should be performed in compliance with the National Electrical Code (ANSI C1) and/or any other requirements which may be applicable to the user.

Installation, operation, and maintenance should be performed only by qualified personnel.

TM-111236-1

VOLUME 1

OPTIONAL MODEMS FOR

REMOTE MONITOR UNITS
626-RMU-1 626-RMU-3 626-RMU-3A
626-RMU-3H 626-RMU-3AH

AND

REMOTE MONITOR INTERFACE ADAPTER
626-PA-6036

Note: Refer to Volume 2 of TM-111200 for maintenance information.

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The information in this manual has been reviewed and is believed to be entirely reliable. No responsibility, however, is assumed for any inaccuracies. The material in this manual is for information purposes only, and is subject to change without notice.

VOLUME 1
OPERATOR'S MANUAL

OPTIONAL MODEMS FOR REMOTE MONOITOR UNITS 626-RMU-1 626-RMU-3 626-RMU-3A AND 626-PA-6036 REMOTE MONITOR INTERFACE ADAPTER

SECTION 1
GENERAL INFORMATION

1.1 INTRODUCTION

This manual describes the installation and operation of the optional modems available for the 626-RMU Remote Monitors and the 626-PA-6036 Remote Monitor Interface Adapter plug-in. This material is provided as an addition to that contained in TM-111200 Volume 1. Use of the modems described below will have no affect on the operating characteristics or specifications as outlined in TM-111200, except for the initiation and termination of communication between the 626-RMU and the 626-PA-6036.

1.2 COMPLIANCE WITH FCC RULES AND REGULATIONS

The modems described in this manual have been approved by the FCC (Federal Communications Commission) for direct connection to the Public Switched Telephone Network. To comply with FCC regulations, users must be aware of certain procedures and considerations regarding the installation and operation of registered terminal equipment.

1.2.1 Notification of the Telephone Company

Before connection to the telephone network, the telephone company must be told which particular line is to be used, the FCC Registration number and Ringer Equivalence of the modem, and which jack is required for the connection. This information appears on the labels supplied with the modem. The telephone company must be notified upon final disconnection of the equipment.

FCC Registration number: DRJ6YR-70737-DM-N
Ringer Equivalence: 0.3B
Phone Jack (USOC): RJ11

1.2.2 Connection to the Telephone Network

All direct connection to the telephone network must be made through standard plugs and jacks as described in Part 68, Subpart F of the FCC Rules. Connection to party lines and coin telephone service is prohibited. After the telephone company is properly notified of the intended connection and the required jack is installed, the modem may be connected by inserting the mating plug of the cable into the jack.

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1.2.3 Responsibilities of the Telephone Company

Technical information needed to permit compatibility with telephone company facilities shall be provided by the telephone company upon request. In order to afford the customer the opportunity to maintain uninterrupted service, the telephone company shall give adequate notice of changes in facilities and operations which could affect the use or performance of the customer's equipment.

1.2.4 In Case of Trouble

If trouble is experienced, the modem must be disconnected from the telephone line to determine if the equipment is malfunctioning. Use of the modem shall be discontinued until the problem is solved.

1.2.5 Incidence of Harm

If the modem should cause harm to the telephone network, the telephone company shall, if practicable, notify the customer that service may be temporarily discontinued. If it becomes necessary to discontinue service immediately without prior notice, the telephone company shall promptly notify the customer, give the customer an opportunity to correct the harmful situation, and inform the customer of the right to bring a complaint to the Commission (FCC) pursuant to the procedures set forth in Part 68, Subpart E of the FCC Rules.

1.2.6 Service

All service and repairs must be performed by Dranetz Customer Service Department. If unauthorized modification or repair is performed, both the FCC registration and manufacturer's warranty in effect will be null and void. If a malfunction is suspected, it is the user's responsibility to contact the Dranetz Customer Service Department for instructions.

1.3 FACTORY REPAIR

When factory repair is required, proceed as follows:

1. Contact the Dranetz Customer Service Department in order to obtain an Authorization Number for factory repair.

   Telephone Number: (201) 287-3680 TWX: (710) 997-9553

   Telex: 499-7808 FAX: (201) 248-9240

   Cable: DRANETZ

2. Fill out the REPAIR/SERVICE ORDER form enclosed in the Series 626 Mainframe Operating Manual. Ship it along with the malfunctioning equipment to the Dranetz Customer Service Dep't.

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SECTION II
THE DM-C15 MODEM CARTRIDGE

2.1 DESCRIPTION

The DM-C15 is a Bell 103 compatible, 300 baud, direct-connect modem in a small plastic cartridge with a 25 ft. telephone cord permanently attached. The modem may be used with any RMU for data communication over standard voice-grade telephone lines. With the DM-C15, the RMU will automatically answer an incoming call, allowing completely unattended remote operation.

2.2 INSTALLATION OF THE DM-C15 IN THE RMU

CAUTION

Insertion or removal of the DM-C15 cartridge while the RMU is powered on may cause damage to both pieces of equipment.

To install the DM-C15 modem cartridge in an RMU, proceed as follows:

1) Turn the ON/OFF switch on the RMU rear panel to "OFF"

2) Insert the DM-C15 into the cartridge receptacle on the RMU rear panel. When fully inserted, the cartridge will protrude slightly less than 1 inch from the panel.

3) Turn the ON/OFF switch on the RMU rear panel to "ON".

To remove the DM-C15 from the RMU, reverse the above procedure.

2.3 CONNECTION TO THE TELEPHONE LINE

Refer to paragraph 1.2.2 of this manual for this information.

2.4 CHARACTERISTICS OF THE RMU WITH THE DM-C15 INSTALLED

With the DM-C15 modem cartridge, the RMU has two communication interfaces: its standard serial port and a telephone modem. One or the other may be used at any one time. The serial port has priority in that the RMU will not answer a telephone call if an active interface cable is detected. However, connecting an interface cable to the serial port will not interrupt a telephone connection. The serial port is used as described in TM-111200.

When the RMU detects an incoming call, it will wait for ringing to stop and place the modem off hook. No tone will be transmitted for 2 seconds (meeting the FCC requirements). After the billing delay, the RMU will transmit the Bell 103 Mark tone for an Answer modem (2225 Hz). The RMU will wait 15 seconds for the Originate Mark tone (1270 Hz). If this tone is not detected, the RMU will place the modem on hook, terminating the connection.

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SECTION III
OPTION 101 FOR THE 626-PA-6036

3.1 DESCRIPTION

Option 101 for the 626-PA-6036 is a built-in Bell 103 compatible, 300 baud, direct-connect modem, allowing data communication with an RMU using standard voice-grade telephone lines. With this option, a telephone jack and an LED indicator are located on the 6036 rear panel along with the standard RS-232C connector. A 25 ft. telephone cord is included. Installation of the plug-in into the Series 626 mainframe is described in TM-111200 Volume 1. This option must be ordered with the 6036 and is not retrofittable.

3.2 CONNECTION TO THE TELEPHONE LINE

Insert the plug at one end of the 25 ft. cord into the telephone jack on the 6036 rear panel. Refer to paragraph 1.2.2 of this manual regarding connection to the telephone network.

3.3 CHARACTERISTICS OF THE 6036 WITH OPTION 101

With Option 101, the 6036 has two communication interfaces: its standard serial port and a telephone modem. One or the other may be used at any one time. The serial port has priority in that the 6036 will not initiate a telephone connection if an active interface cable is detected. Connection of an interface cable will not interrupt an established telephone connection. The serial port is used as described in Volume 1 of TM-111200.

The LED on the 6036 rear panel, marked "OFF HOOK" will light while the modem is "off hook" (corresponding to a telephone with its handset lifted from the switch hook). This condition occurs while dialing and during a telephone connection. Any other time, such as while using the 6036 RS-232 port or while the 626 OPERATE mode is in effect, the modem will be "on hook" (disconnected).

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SECTION IV
OPERATION

4.1 ESTABLISHING TELEPHONE COMMUNICATION

The following descriptions assume that an RMU with a DM-C15 modem is installed where it is connected to a telephone line, ready to answer an incoming call.

4.1.1 Using the 6036 with Option 101

With the Series 626 powered on, in the OPERATE mode, select the PROGRAM mode for the 6036 with Option 101. The 6036 will identify itself and indicate that it has the "MODEM OPTION". If an active interface cable has been connected to the 6036 RS-232 port, the usual baud rate prompt will be printed. Otherwise, the user will be prompted to enter a telephone number, and to press the ENTER key after all digits have been input. The number may be up to 18 digits long. The COLON/DECIMAL key is used as a "wait for second dial tone" and is useful when calling from a system where a special code must be dialed to obtain an outside line. The CLEAR ENTRY key is used to abort the entry and start over.

After the telephone number has been entered, the 6036 will print the number. If the user decides not to dial the number, the CLEAR ENTRY key may be pressed. If the ENTER key is pressed, the 6036 will wait 2 seconds for a dial tone and then dial the number. Pulse dialing is used, so the time required to dial the number may be as long as 20 seconds, depending on the length of the number and the value of the digits.

After dialing the number, the 6036 will transmit a 1270 Hz tone (Originate Mark) and wait 12 seconds for a 2225 Hz tone (Answer Mark) from the RMU. If the tone is not detected, the 6036 will place its modem on hook and indicate that the call was not completed. If the tone is found, the 6036 will proceed to send characters as if the RS-232 port were being used. From this point, operation of the RMU is exactly as described in TM-111200.

If there is no response from the RMU within 30 seconds after dialing is started, pressing the CLEAR ENTRY key will cause the 6036 to repeat the character sequence sent to the RMU. If there is still no response after several seconds, the Series 626 should be set to the OPERATE mode, and then back to the PROGRAM mode to start over.

4.1.2 Using other Modems to Communicate with the RMU

The RMU with the DM-C15 behaves as a Bell 103 compatible Auto-Answer modem. Any modem used to communicate with the RMU/DM-C15 must be Bell 103 compatible, Originate mode, full duplex, and transmit and receive serial asychronous binary data at 300 baud. Specific instructions cannot be given, but successful operation has been achieved with various acoustic coupler, outboard direct-connect, and built-in computer modems.

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4.2 TERMINATING THE TELEPHONE CONNECTION

The normal method of terminating the telephone connection is to use the RMU's END SESSION command. This is Main Menu choice number 8. When this choice is made, the RMU sends a message to the 6036 to place its modem on hook, then the RMU places its own modem on hook. Setting the Series 626 to the OPERATE mode will also cause the 6036 to go on hook. Both modems will automatically go on hook if they fail to detect the proper carrier tones. The 6036 will produce the message "DATA CARRIER LOST" if this happens.

4.3 SPECIFICATION SUMMARY

	RMU WITH DM-C15	6036 WITH OPTION 101
Modem Type	Bell 103, Answer	Bell 103, Originate
Telephone Connection	Direct-connect	Direct-connect
FCC Reg. No.	DRJ6YR-70737-DM-N	DRJ6YR-70737-DM-N
Ringer Equivalence	0.3B	0.3B
Jack Type (USOC)	RJ11	RJ11
Data Format	Serial, Asynchronous	Serial, Asynchronous
Data Rate	300 Baud	300 Baud
Operating Mode	Full Duplex	Full Duplex
Transmit Level	-9 dBm Permissive	-9 dBm Permissive
Transmit Mark Tone	2225 Hz	1270 Hz
Transmit Space Tone	2025 Hz	1070 Hz
Receive Mark Tone	1270 Hz	2225 Hz
Receive Space Tone	1070 Hz	2025 Hz
Pulse Dialing	N/A	61 mS Make 39 mS Break 800 mS Between Digits

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CALLING SEQUENCE:

1) User enters telephone number from Series 626 front panel, then presses ENTER to start dialing.

2) 6Ø36 waits 2 seconds, dials number, transmits 127Ø Hz tone, and waits for 2225 Hz. If tone is not received within 12 seconds, 6Ø36 goes on hook and prints "CALL NOT COMPLETED"

3) RMU detects ringing, goes off hook, waits 2 seconds, transmits 2225 Hz tone, and waits for 127Ø Hz tone. If no received tone within 15 seconds, RMU goes on hook.

4) If 6Ø36 detects 2225 Hz tone from RMU, it attempts to send a character sequence. CLEAR ENTRY key repeats character sequence attempt. If no response from RMU within 3Ø seconds, user sets Series 626 to OPERATE mode, causing 6Ø36 modem to go on hook.

5) If RMU responds, operation is as described in TM-111200.

6) User selects END SESSION command to terminate connection.

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